Probabilistically Populated Medical Record Templates

2013 AMIA Student Design Challenge
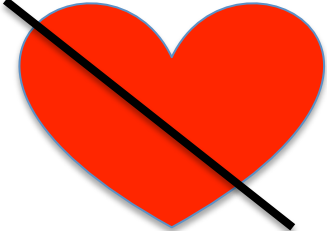
Tristan Naumann
Marzyeh Ghassemi
Andreea Bodnari
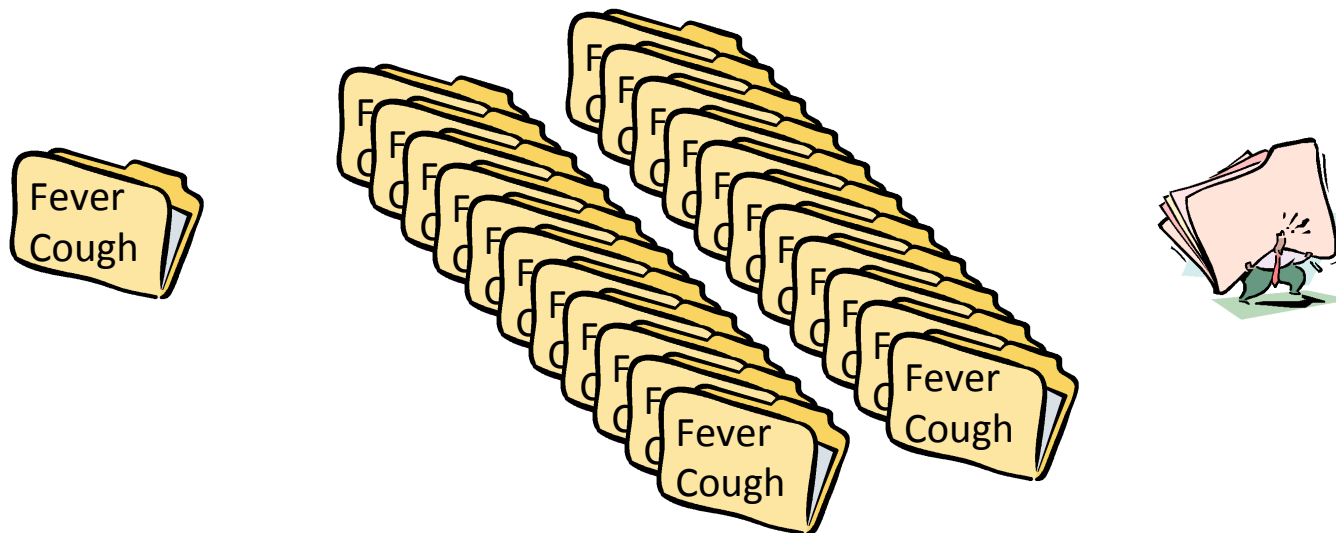*Rohit* Joshi

November 19th, 2013
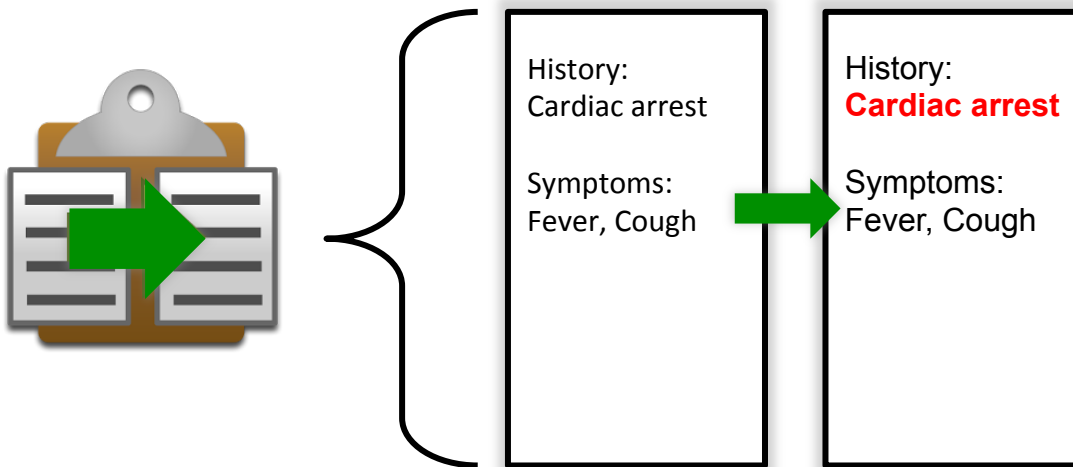
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Introduction

We ❤ EMR

Problem Overview

1. **Redundant** information across patient records is underutilized

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2. **Copy-paste** edit process within records is error prone

History:
Cardiac arrest

Symptoms:
Fever, Cough

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Sources:
Thornton, J. Daryl, et al. *Critical care medicine* 41.2 (2013): 382-388.
Siegler, Eugenia L., and Ronald Adelman. *The American journal of medicine* 122.6 (2009): 495-496.

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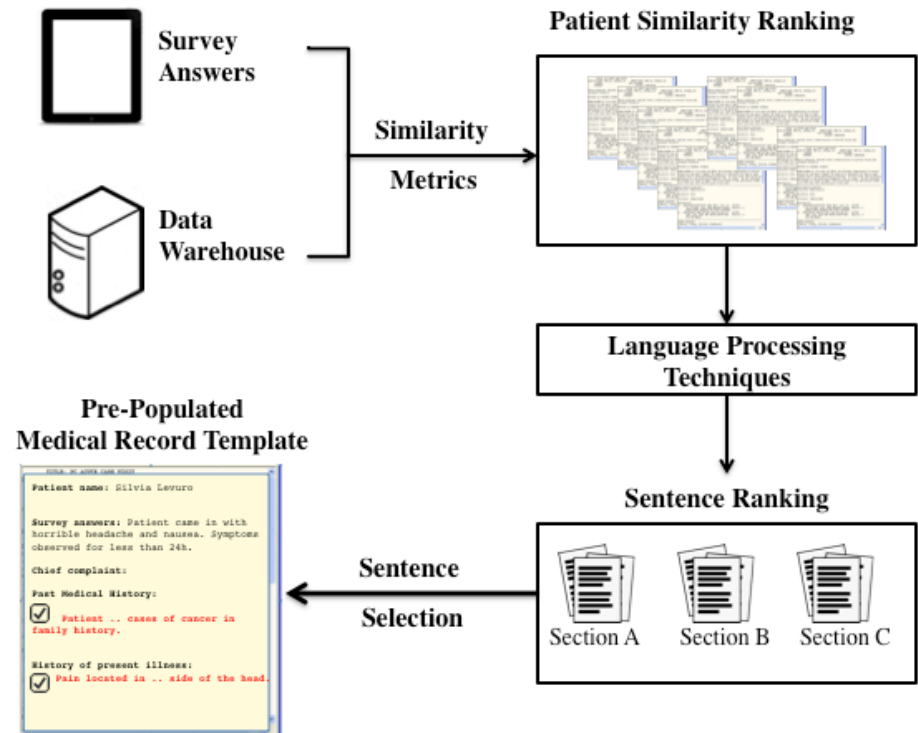3. **High quality** records consume clinical practice time

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Implementation Details

Engage patients in clinical process

Learn the right data for the right context:
- patient-relevant medical context
- medically similar patient cohort

Create customized templates by clinical role

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Probabilistic Templates

Profile | History | Allergies | Labs

Logged in as Dr Naumann

Step 2: Select Diagnosis

SIMILAR PATIENTS COHORT

Low Back Pain

Sciatica

Disk Symptoms

Urinary Symptoms Present

More

Step 3: Select Relevant Template Categories

REVIEW OF SYSTEMS

☐ Cardiovascular

REFERRAL

☑ Orthopedics

PATIENT EDUCATION

☐ Home Care Tips

More

Step 1: Review relevant patient-entered admission data.

Patient Name: Marzyeh Ghassemi

28 year old female presenting with low back pain that started 2 days ago.

Read and confirm the complete summary »

History of Present Illness

28 year old came with low back pain that started 2 days ago after he lifted few heavy boxes. He was helping his friend move his apartment.

☑ Pain Intensity: 7/10
Type: Achy pain

Counselling

Medications

☑ Pain killers : Tylennol or ibuprofen topical pain relivers like bengae

Treatment Plan

Typically resolves in 7-10 days but may last upto six weeks.

Evaluation

1. **Controlled Testing**
Compare change in documentation time

2. **Active Learning**
Measure template errors continuously by majority voting

3. **Expert Opinion**
Feedback from clinicians about template errors

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Summary

Considerations

- Possible source of error
- Separation of template and clinical judgment

Benefits

- Leverage patient wait time
- Generate relevant content
- Focus clinical time on patient interaction

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Questions?

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